

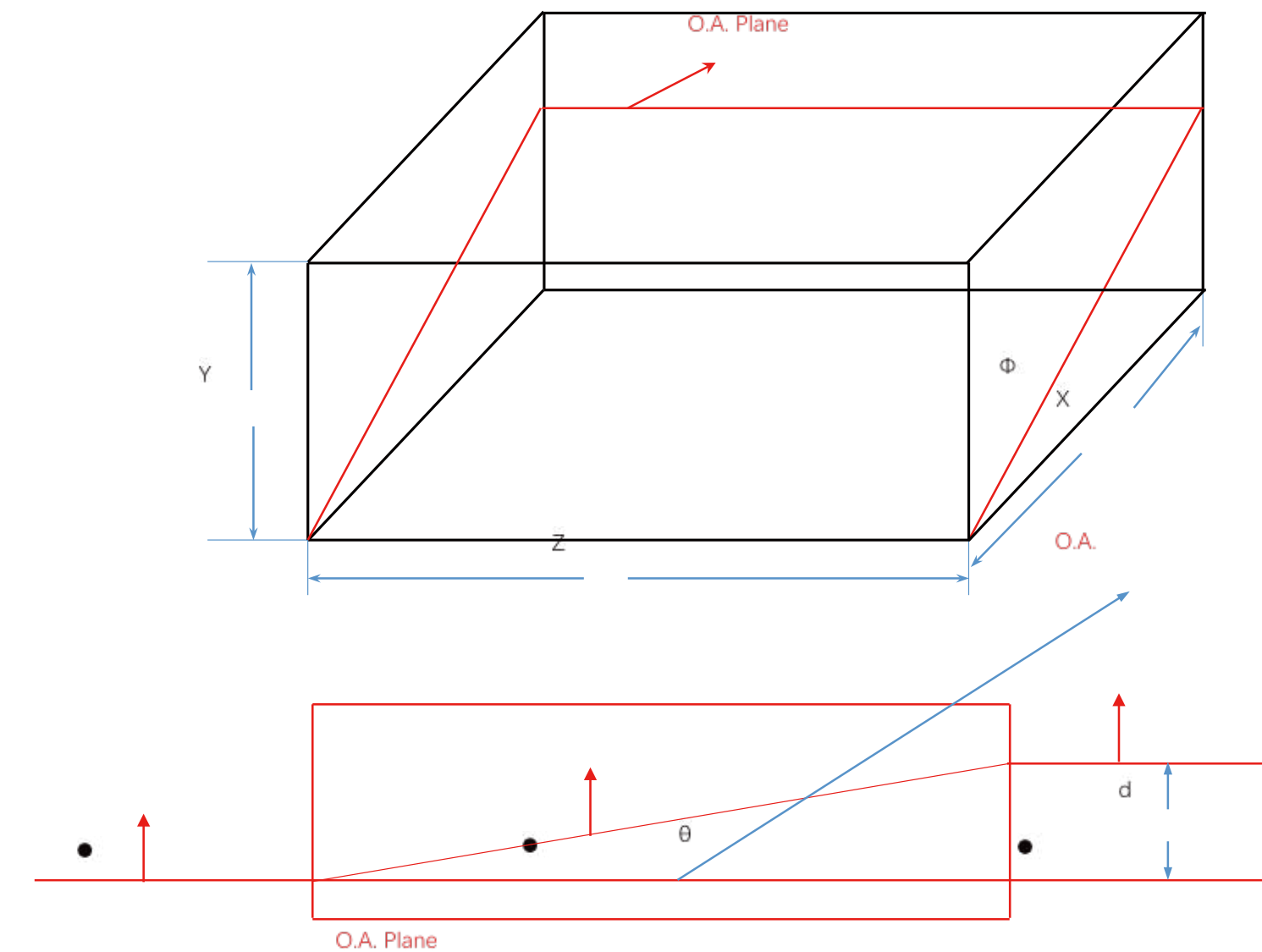


# One-stop Optics Solution for Telecommunications



**YOUR  
OPTICS+  
SOLUTION**

## Birefringence Crystals: YVO4/LiNbO3



- Wedge, Beam Displacer, PBC Core, C-Polarizer
- Various Size from 0.5mm to 40mm

- Wavefront Distortion better than  $\frac{1}{4}$
- Optical Axis Orientation Tolerance:  $\pm 0.1^\circ$

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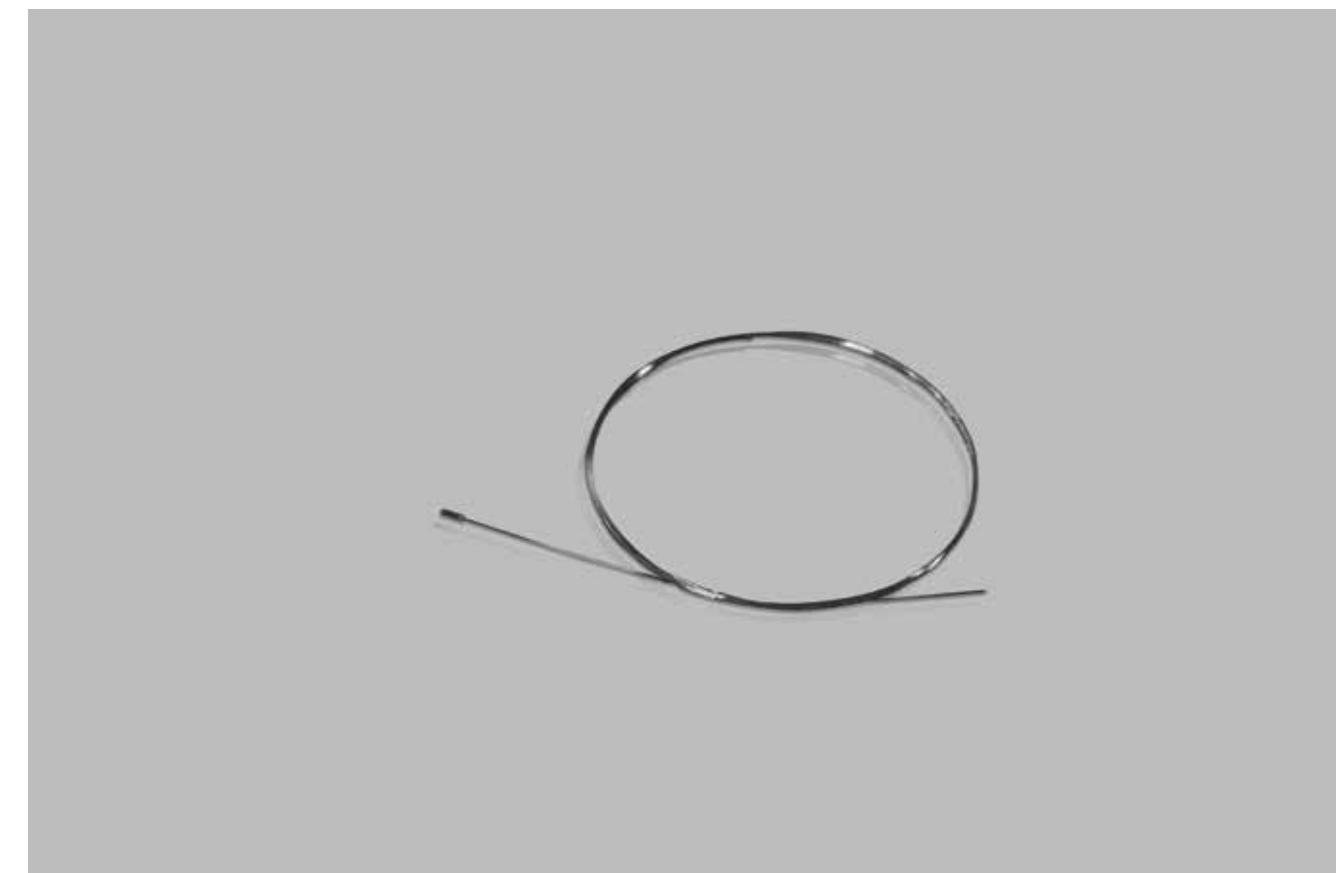
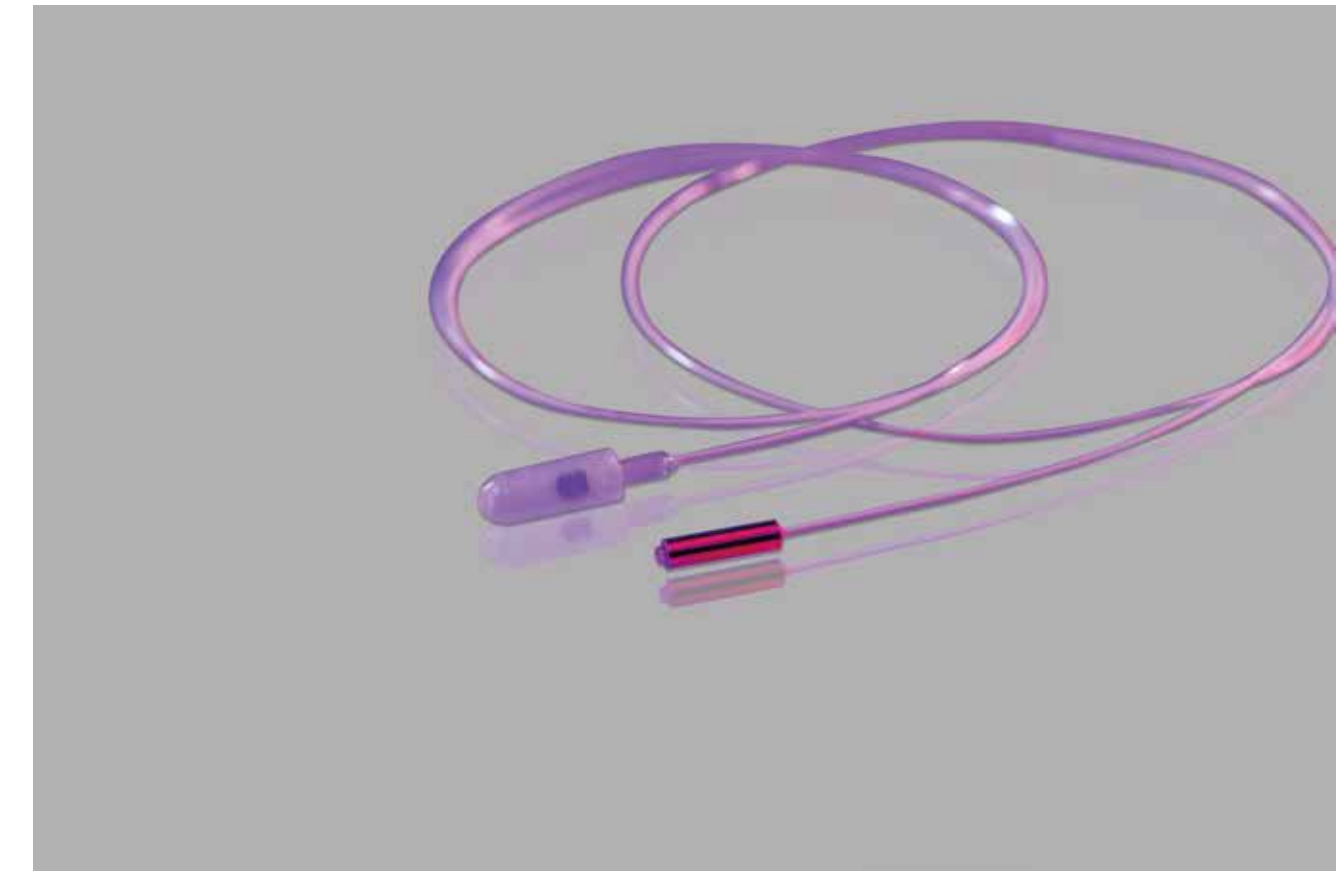
## Collimator

### Features

- Low insertion loss
- High return loss
- Telcordia compliant
- Epoxy-free optical path
- RoHS 6 compliant

### Applications

- Circulators
- DWDM
- Switches
- Interleaves
- Signal processing

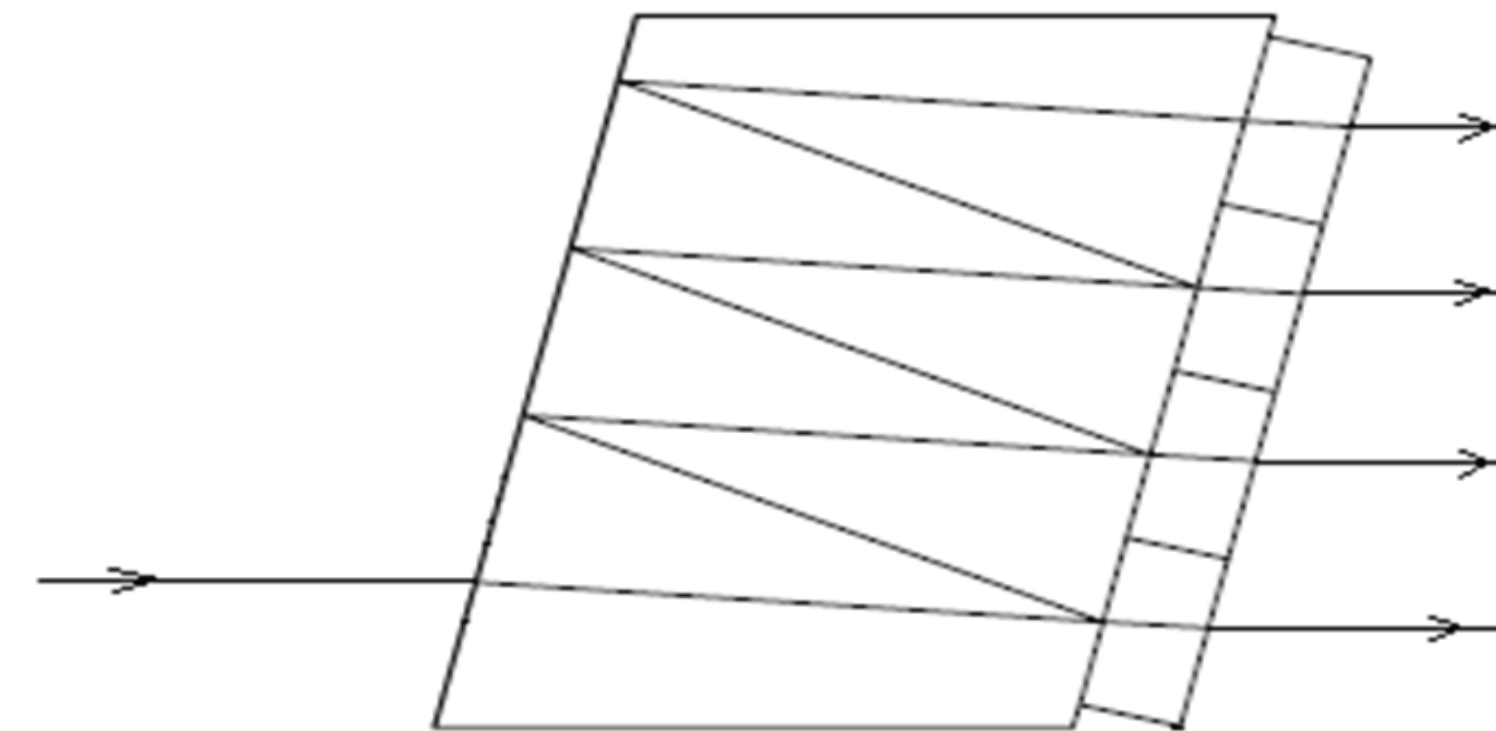


# Z-Block

## Applications

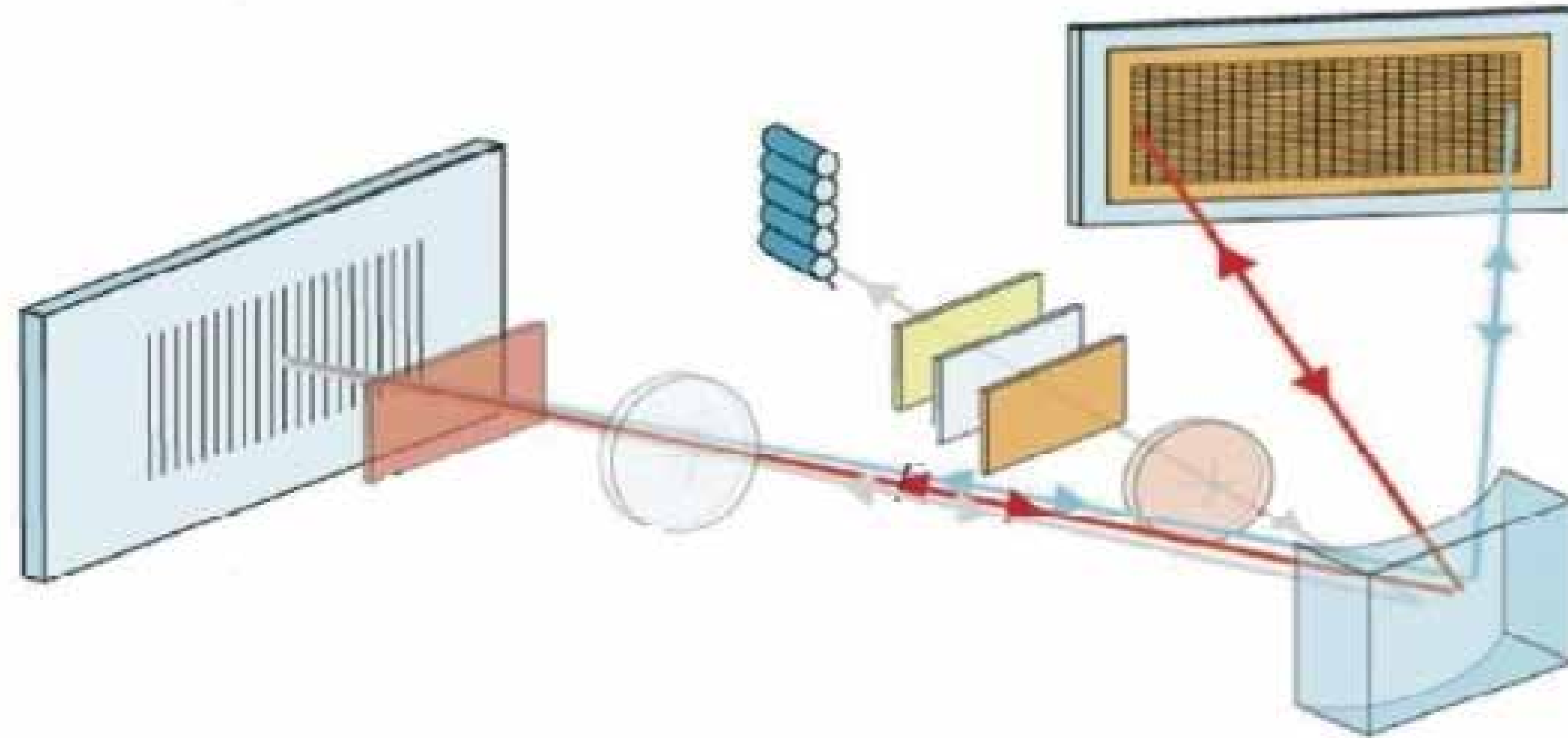
- MUX/DEMUX
- 100G, 400G, 800G Transceivers

Parameter	Unit	SWDM	CWDM	LWDM
Operation Wavelength	nm	840~960	1250~1350	1280~1330
Center Wavelength( $\lambda_c$ )	nm	851/881	1271/1291	1295.56/1300.05
		911/941	1311/1331	1304.56/1309.14
Passband(PB)	nm	$>\lambda_c \pm 8$	$>\lambda_c \pm 6.5$	$>\lambda_c \pm 1.05$
Max. Insertion Loss @PB	dB	<1.0	<1.0	<1.0
IL Uniformity @PB	dB	<0.4	<0.4	<0.5
PDL@ Passband	dB	<0.25	<0.25	<0.25
Adjacent CH Crosstalk @PB	dB	>25	>25	>25
Non-Adj. CH XT@PB	dB	>30	>30	>30
Typical A.O.I.( in air)	Deg.	8/13.5, Customized.	8/13.5, Customized.	8/13, Customized.
Pitch	um	500/750/900/1000/1100/1500, Customized		
Beam Parallelism	Deg.	<0.2	<0.2	<0.2
Edge chip	mm	<0.1	<0.1	<0.1
Corner chip	mm	<0.2	<0.2	<0.2
Surface quality	-	40/20	40/20	40/20
Operation temperature	°C	-20 ~ +85	-20 ~ +85	-5 ~ +75
Storage temperature	°C	-40 ~ +85	-40 ~ +85	-40 ~ +85



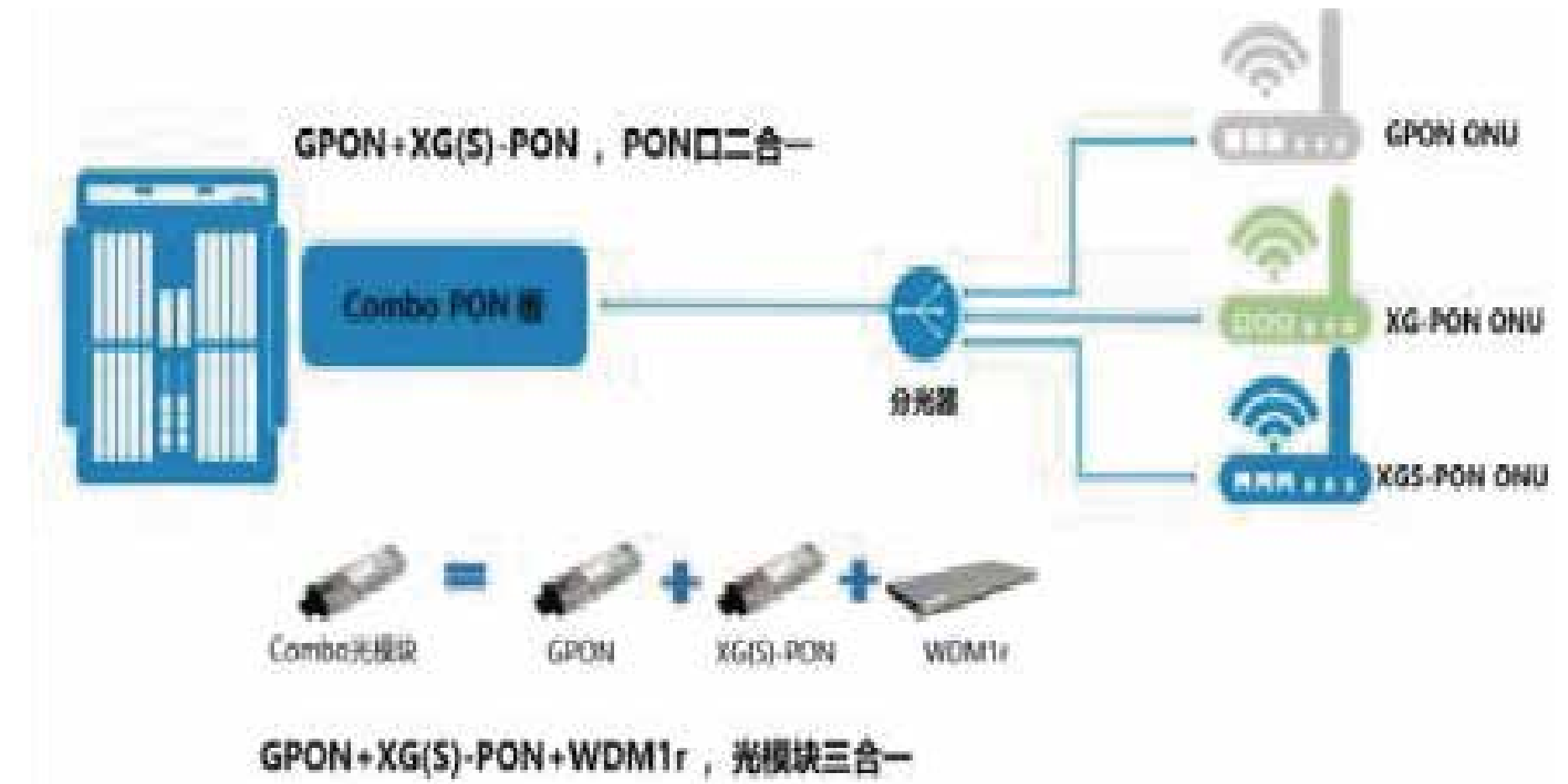
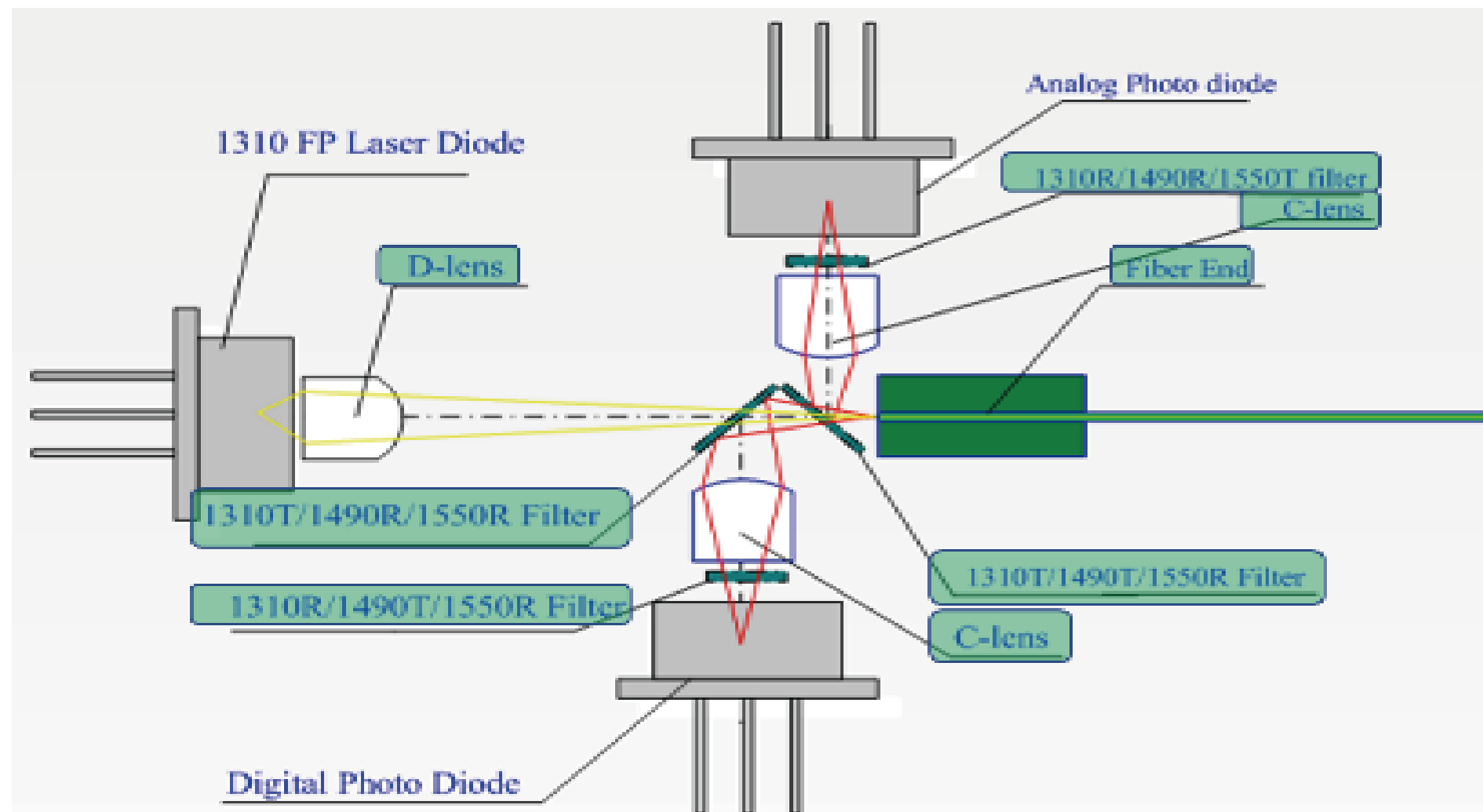
## WSS Optics

- Cylindrical Lens
- Spherical Lens
- Grism/Prism/Wedge
- Fiber Collimator
- Mirror
- Waveplate
- Assembly Optics



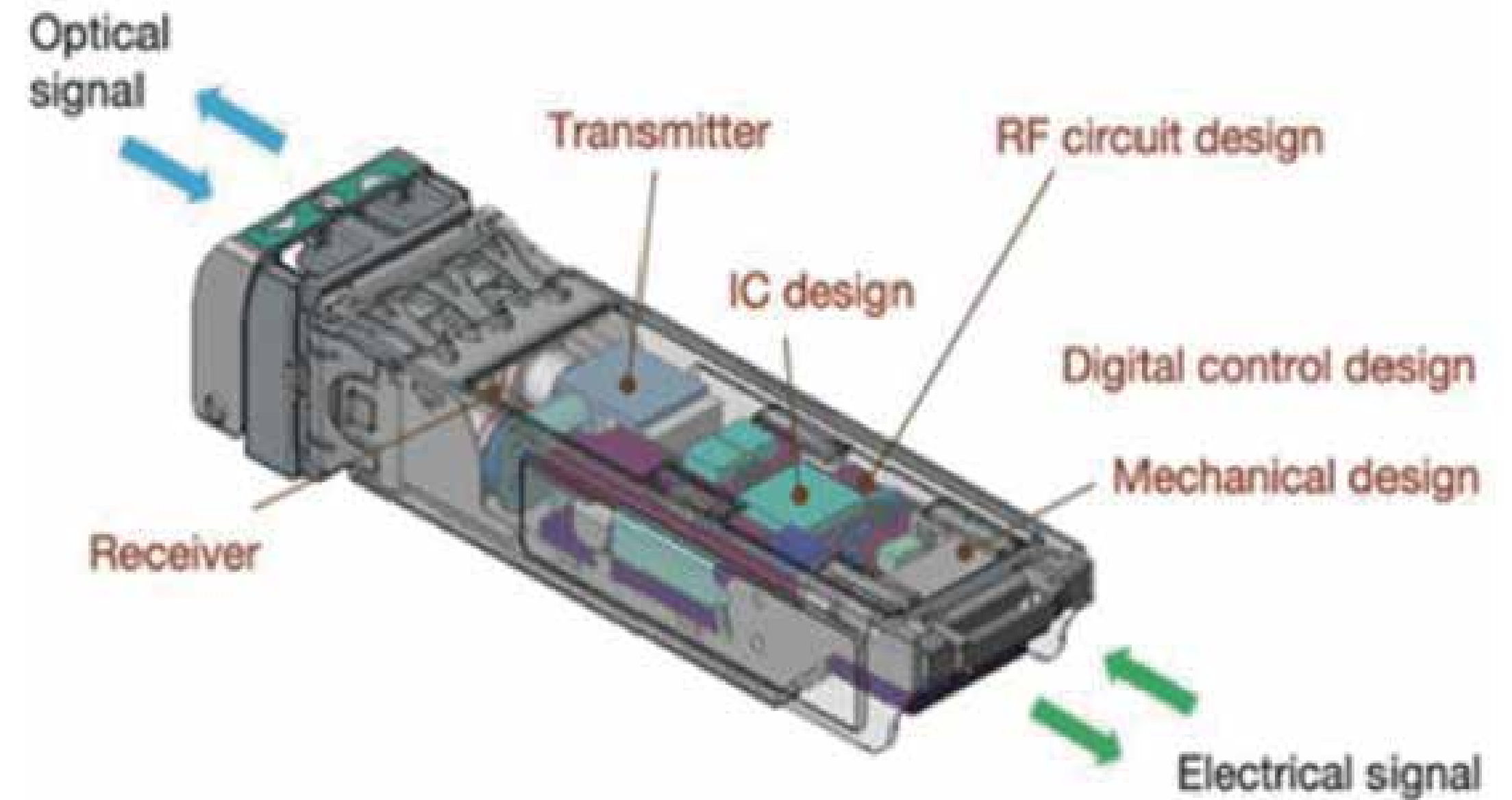
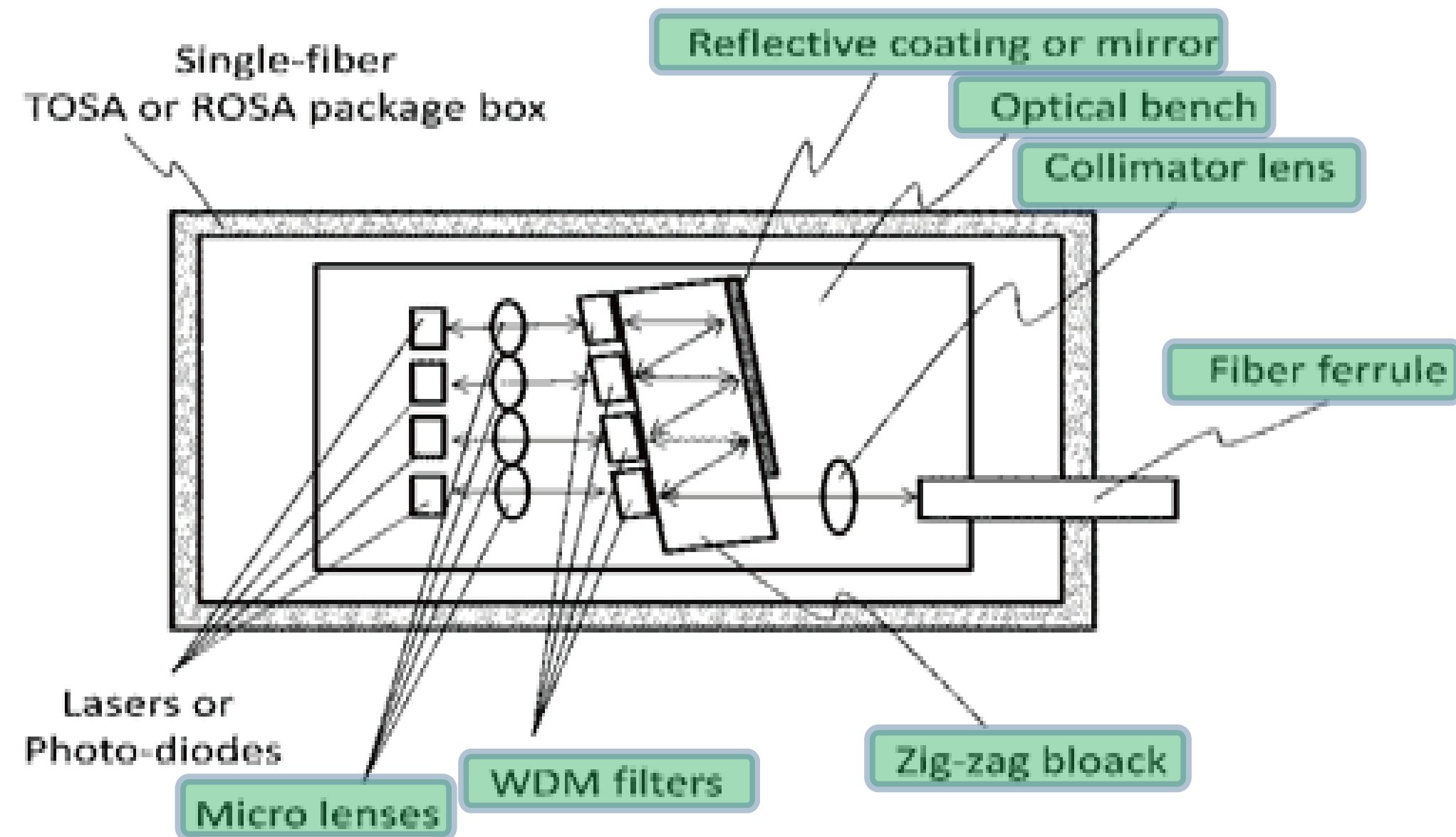
# Optical Components for FTTx and PON

- Waveplate
- C-Lens, Lens
- EPON Filters
- 10G EPON Filters
- PBS Series
- Pigtail Assembly
- GPON Filters
- Etalon series



# One-Stop Solution for TRx Optics

- C/L/S WDM Filters
- Bidi Filter
- Mirror, Beam Splitter
- Assembly Optics
- Z-BLOCK Assembly
- Fiber pigtail, Micro Lens
- Prism

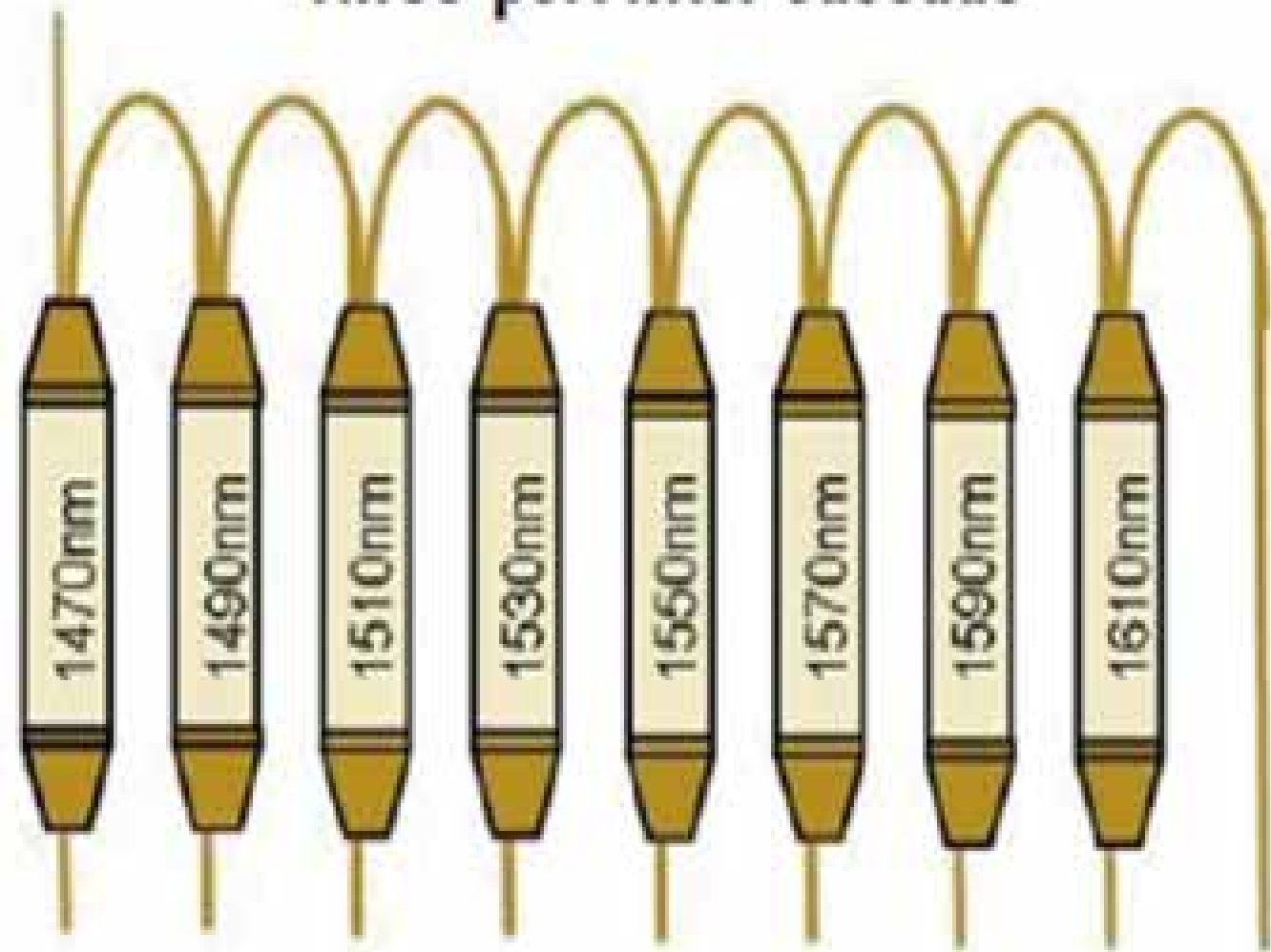


# WDM Components for 5G and DC

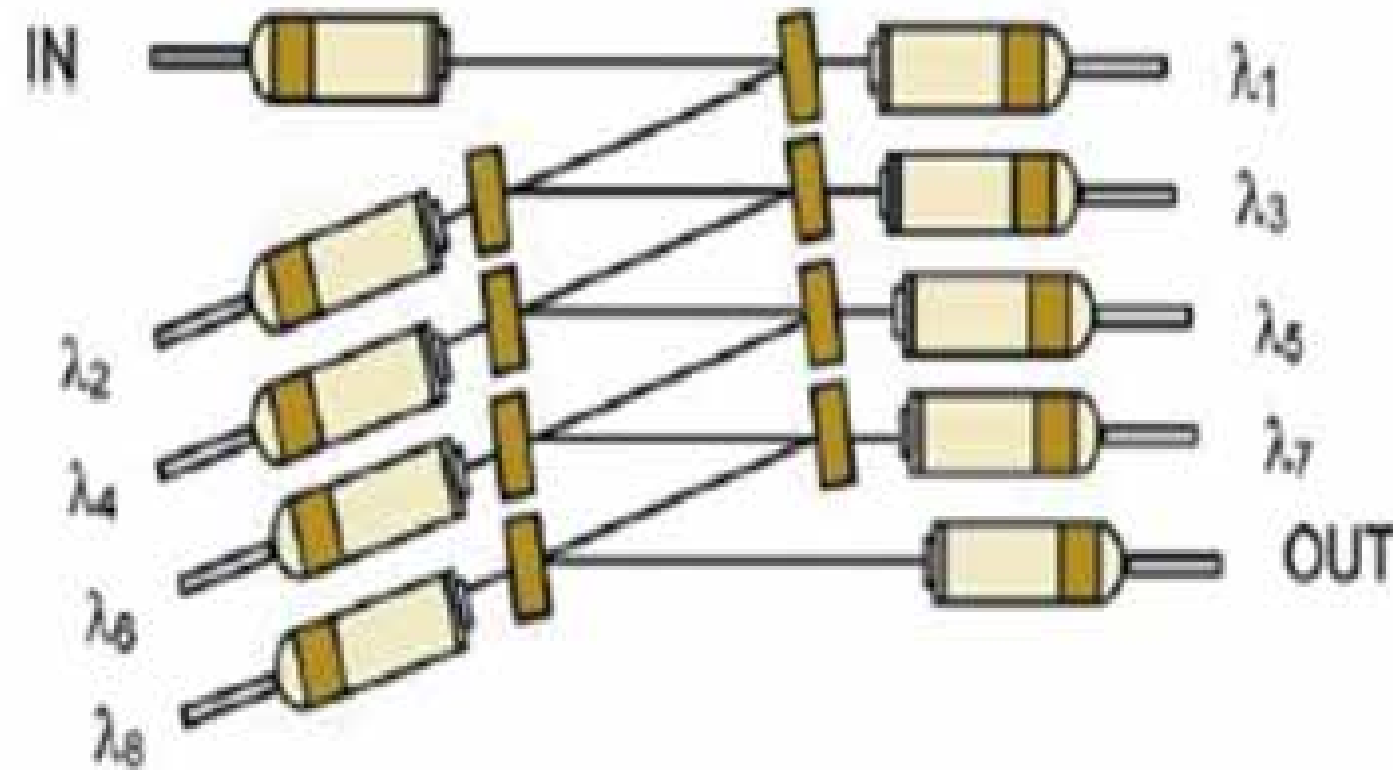
- CWDM Filter
- CCWDM Filter
- WDM Filter
- Prism
- Collimator
- Pigtail
- Lens

## CWDM Demultiplexing/multiplexing devices

Three-port filter cascade



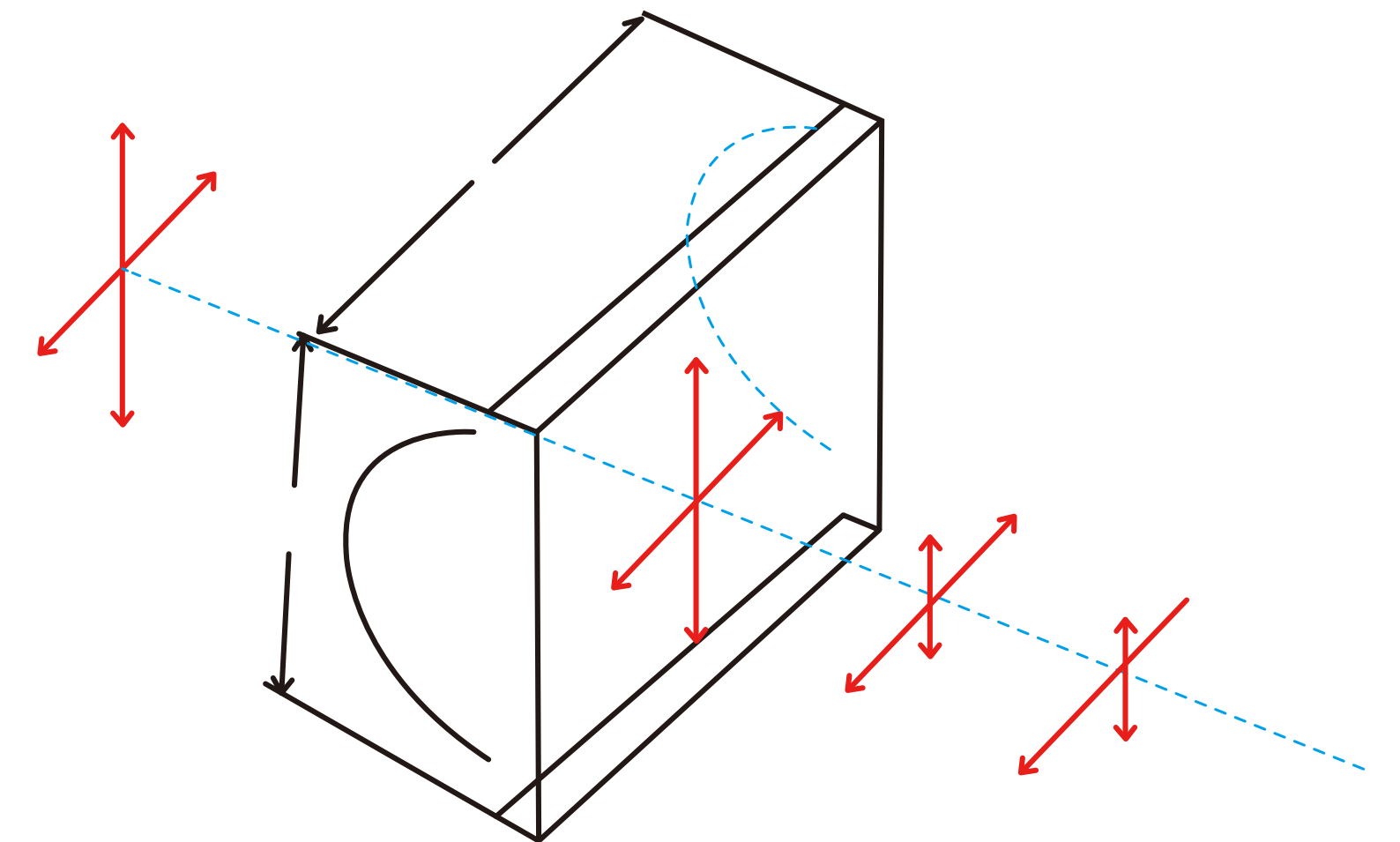
Compact CWDM





## Cylindrical Lens

- Material: N-BK7, N-SF11, Fused Silica and other customized optical glass types;
- Lens Types: Plano Convex/Concave, Bi-Convex/Concave, Achromatic, Meniscus;
- Dimension and Tolerance: 1 to 200mm, Tolerance: +/- 0.05 mm, Typical Centration: <math>\lt; 5^\prime</math>;
- Radius Tolerance  $\leq 0.2\%R$ ,  $R < 500\text{mm}$ ;  $\leq 0.5\%R$ ,  $R > 500\text{mm}$ ;
- Surface Quality better than 40/20;
- Surface Flatness:  $\lt; 1/10 \lambda$  at 632.8nm;

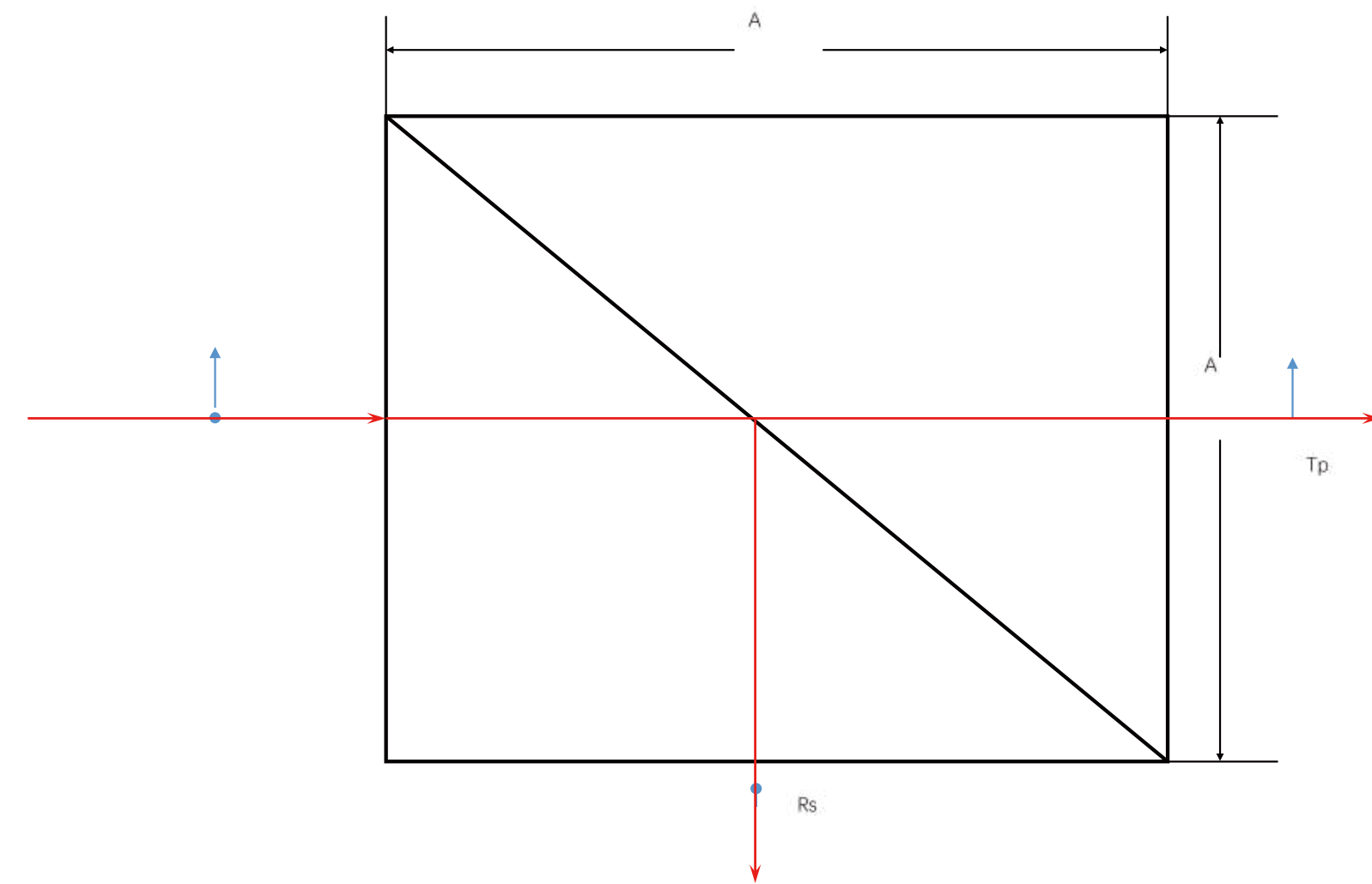


## Beam Splitter-PBS

- Material: Optical glass like N-BK7, Fused Silica, etc.
- Type: PBS(Polarization), NPBS(Non-Pol.), Cube, Plate with various sizes;
- Size and Tolerance: 0.5mm to 30mm, +/-0.05mm(Typical);

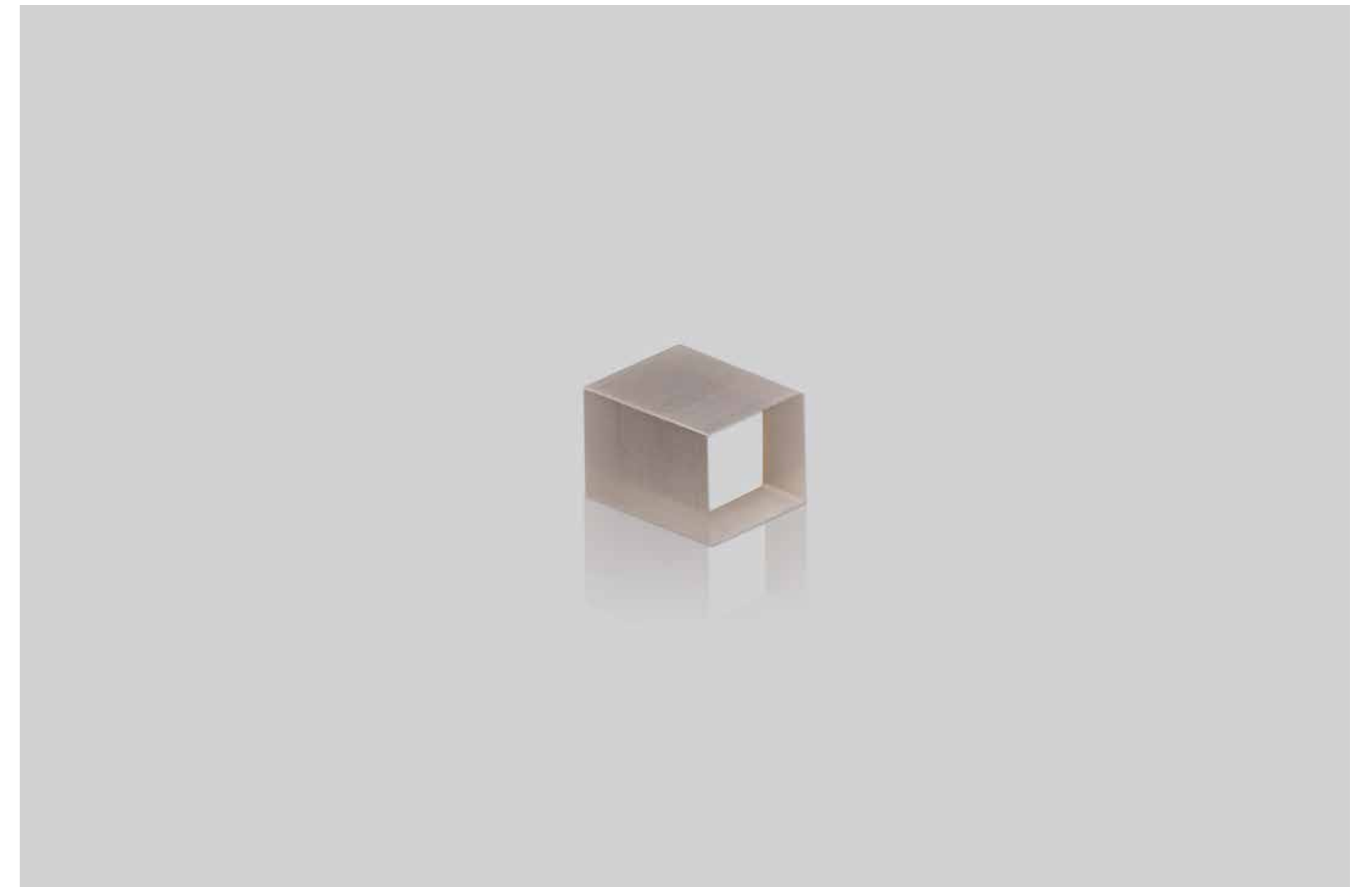


- Beam Deviation: <math><3\text{ arc min}</math>(Typical);
- Optional T/R ratio for random polarization; High Extinction Ratio >1000:1;
- Typical Surface Flatness:  $1/10\lambda$  at 632.8nm;



## Solid Etalon

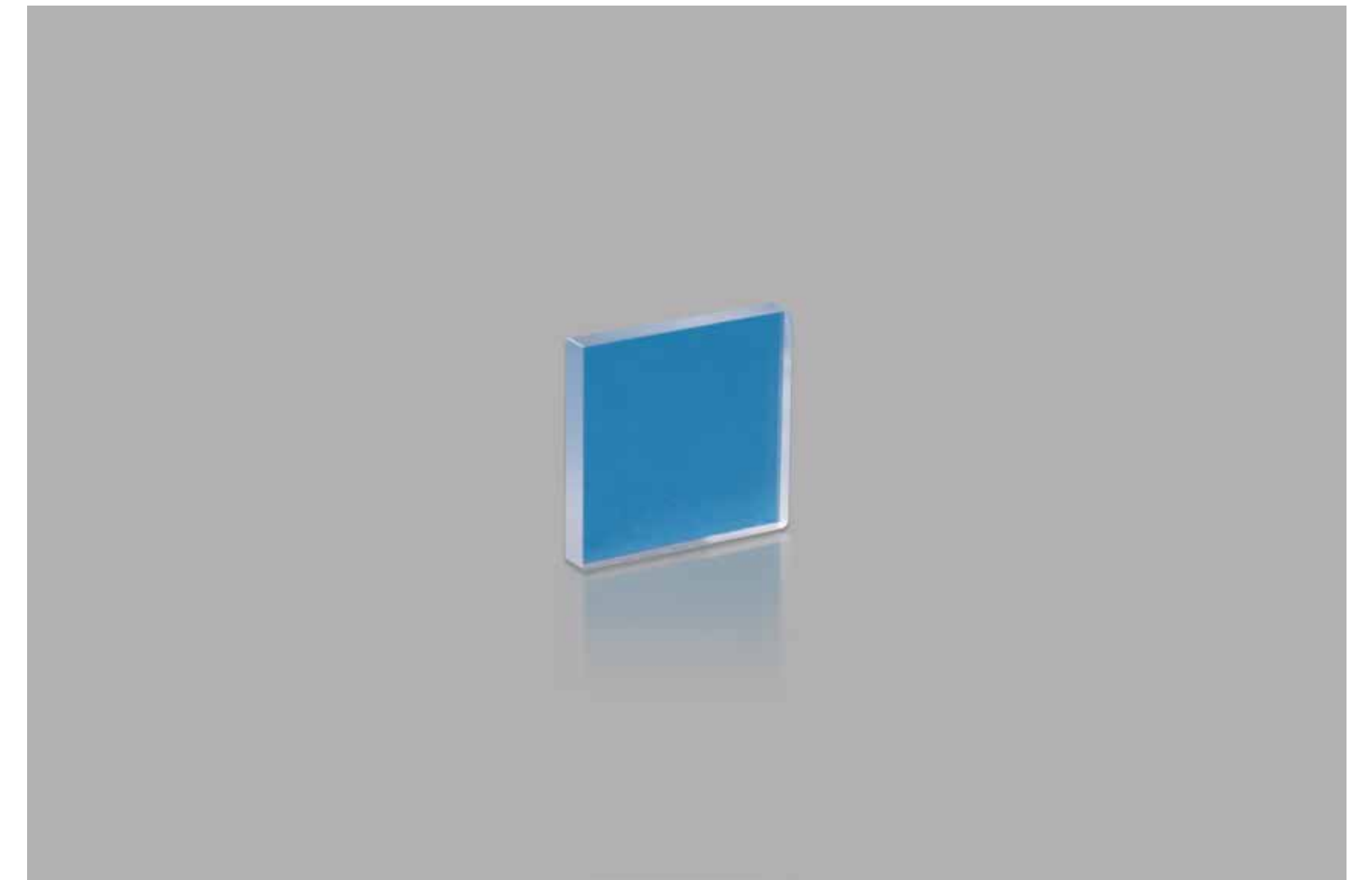
- Material: Silicon, Fused Silica, Quartz, N-BK7, etc.
- Wavelength: O band, C band and L band (1565nm-1625nm);
- FSR: From 10GHz to 1200GHz (Typical:  $100\text{GHz} \pm 0.02\text{GHz}$ ,  $50\text{GHz} \pm 0.01\text{GHz}$ )
- Construction: Single-cavity Etalon, Two-cavities Etalon, Three-cavities Etalon



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## Wave-plate

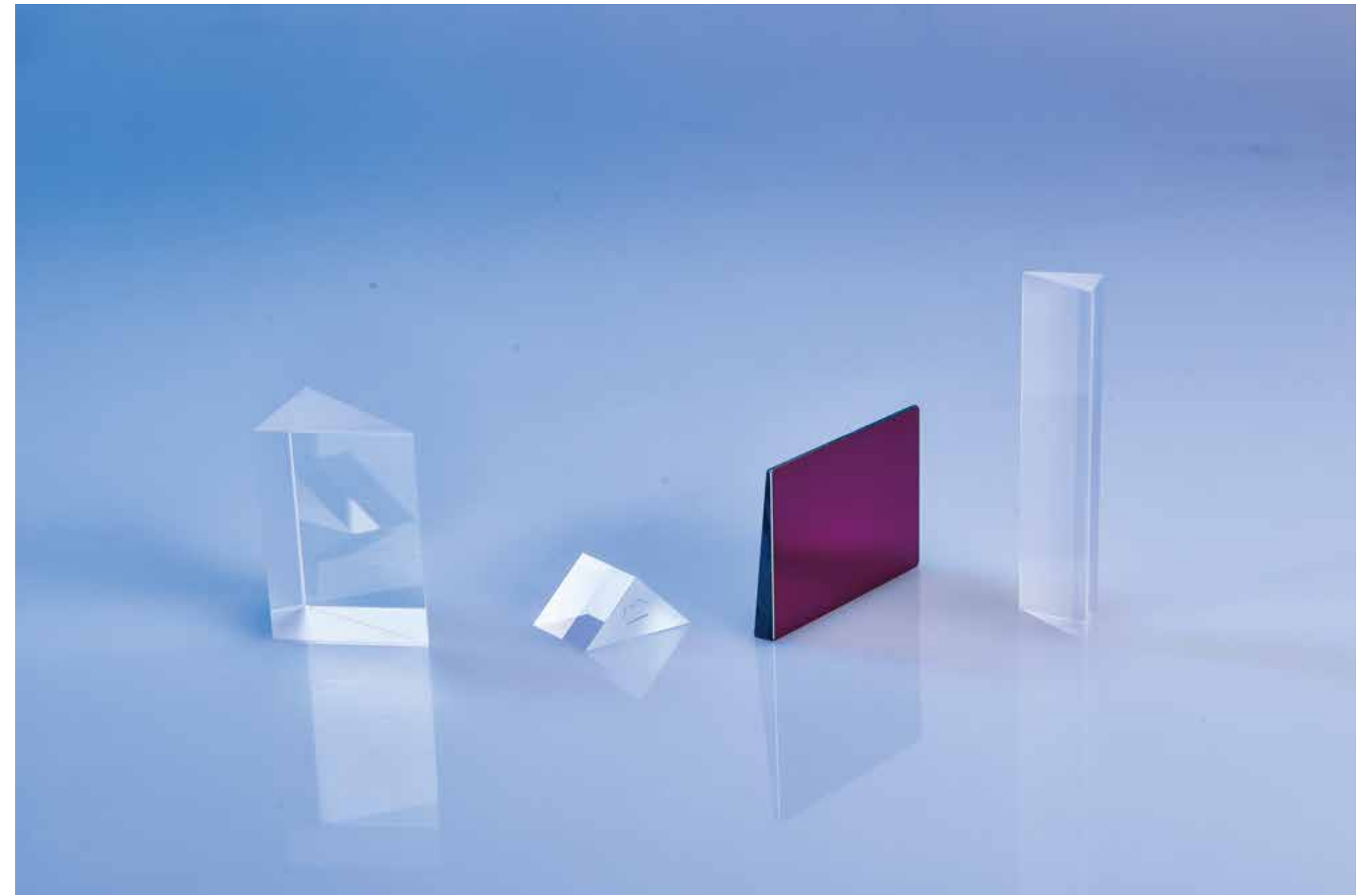
- Material: Quartz, MgF<sub>2</sub>.
- Type: True Zero Order, Low Order, Multi Order, Achromatic, Dual Wavelength
- Retardation Tolerance: up to 1/500 Transmitted Wavefront:  $<1/10 \lambda$ ;
- Sizes from 0.3mm to 100mm



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## Prism

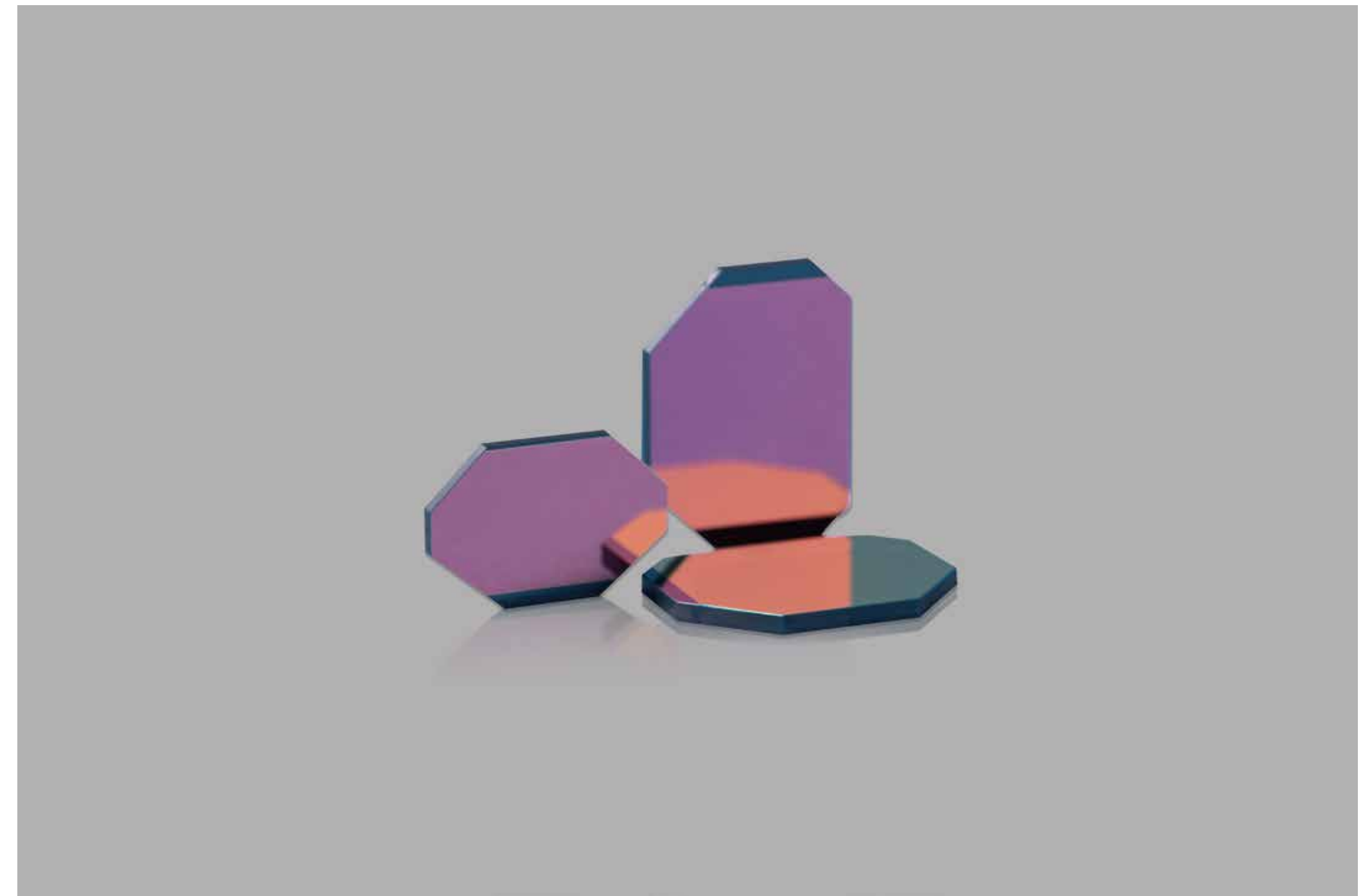
- Various Optical Materials: N-BK7, Fused Silica, N-SF11, etc.
- Size and Tolerance: 0.5 to 100mm, +/-0.1mm; Angle Tolerance: <30 arc sec;
- Coating: AR, PR, HR at O, C and L band with incidence angle over 0-70deg;
- Typical Surface Flatness:  $1/10\lambda$  at 632.8nm



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## HR Mirror

- Various Optical Materials: N-BK7, Fused Silica, ZERODUR, etc.
- $R > 99.9\%$  at O, C and L band for various incidence angle over 0-70deg
- Up to  $1/10 \lambda$  flatness and 20/10 surface quality
- Low PDL  $< 0.05\text{dB}$  (Typical)
- Typical Surface Flatness:  $1/10 \lambda$  at 632.8nm



# One-Stop Solution for Coherent Optics

## Beam Shaping

### Lens Types

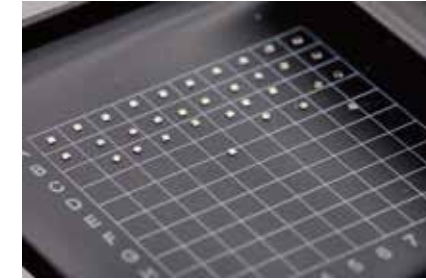
Plano Bi-Convex/Concave/  
Achromatic/Meniscus



## Beam Monitoring

### Etalons

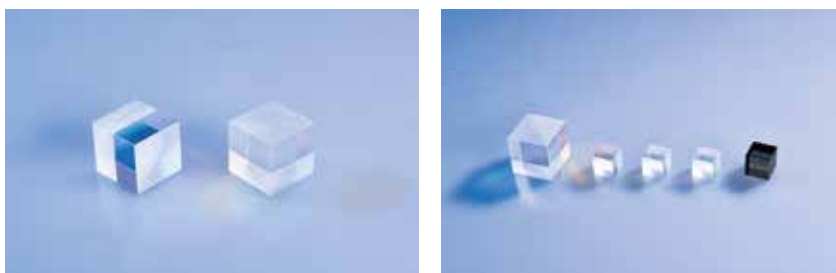
Air space, Solid and Doubleor  
Triple Cavities Etalons



## Beam Combiner & Splitter

### PBS/PBC

(Polarization), NPBS(Non-Pol.),  
Cube, Plate with various sizes



## Beam Isolation

### FSI Types

Ringed/SMT/Latching/Non-latching  
Receptacle/



## Beam Adjustment

### Wiggle Block

Adjust the beam path  
direction/Polarization/position.



## Subassembly

### PBS/PBC/Block

customized  
PBS/WP/PRISM/MIRROR/FSI/Block Assembly



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